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ABSTRACT

The objectives of this study were (1) to analyze the linguistic structures and the linguistic deviations used by children in their written sentences, and (2) to compare the structures and deviations with the quality of the writing, as judged by three competent raters. Eighty fourth-grade and 80 sixth-grade children (8% black) from working-class families, showing a mean IQ of 106 with a standard deviation of 12, were given a picture as a stimulus and asked to write a composition based on it. Types of linguistic structures and deviations were then tabulated. The discourse samples were grouped into three categories--high, medium, and low--and then compared on each of 63 measures. Themes rated high were longer than average while low themes were shorter and showed little use of such structures as subordinate clauses, modals and adverbs. Grade and sex differences were apparent in the measures, with females producing more discourse than males and sixth graders writing longer T-units than fourth graders. Only 24 categories of syntactic deviations appeared and the lexical deviations also seemed to fall into a few general groups. It was concluded that such groupings present the possibility of a rational approach to teaching the standard syntax and spelling. (Further implications of the study, tables of research findings, and a list of references are given.) (Author/MF)

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LINGUISTIC STRUCTURES AND DEVIATIONS IN CHILDREN'S WRITTEN SENTENCES

Lester S. Golub and Wayne C. Fredrick

Report from Project 204, Phase 2:
Oral and Written Language Learning
Lester S. Golub, Principal Investigator

Wisconsin Research and Development
Center for Cognitive Learning
University of Wisconsin
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This Technical Report is from the English Language Learning Program, Phase II of Project 204. The general objective of the English Language Learning Program is to develop needs and specifications for instructional materials and procedures in oral and written language in the elementary school. Prototypic instructional materials in oral and written language learning are developed from the specifications for this program. Involved in the program are teachers, English language arts coordinators, linguists, psychologists, and scholars in English language and language learning. Research is conducted to refine the program and to generate new knowledge which will be incorporated into this instructional system.

CONTENTS

		Page
	List of Tables	v
	Abstract	vii
I	Purpose	1
	Subjects	1
	Analysis of Linguistic Structures	1
	Description of Syntactic and Lexical Deviations	5
II	Summary and Implications	10
	References	11

LIST OF TABLES

Table		Page
1	Scores on Measures Obtained from Written Discourse	2
2	1683 Syntactic Deviations	6
3	1001 Lexical Deviations	8

ABSTRACT

The types of linguistic structures and deviations appearing in the written discourse of Fourth and Sixth Graders were tabulated. The discourse samples were grouped into three categories, high, medium and low, and then compared on each of 63 measures. Themes rated high were longer than average while low themes were shorter and showed little use of such structures as subordinate clauses, modals, and adverbs. Grade and sex differences were apparent in the measures: Females produced more discourse than males and Sixth Graders wrote longer T-units than Fourth Graders. Syntactical and lexical deviations were counted and categorized. Only 24 categories of syntactic deviations appeared and the lexical deviations also seemed to fall into a few general groups. Such groupings present the possibility of a rational approach to teaching the standard syntax and spelling. Implications of the results for the elementary language program are stated.

I
PURPOSE

English language arts texts written for children and those written for prospective and experienced teachers generally have a "corrective" philosophical and pedagogical bias. Few, if any, of these instructional materials have a developmental bias based on children's linguistic and conceptual growth.

The purpose of this study is to inquire into children's written language at the Fourth and Sixth Grade level and to describe the types of linguistic structures and deviations used. Ultimately, the information gained from this study will contribute to the psycholinguistic information needed by teachers, curriculum coordinators, and textbook writers. Hopefully, such information will help practitioners and developers of language arts materials to reinforce the language performance at hand and to reshape deviant language behavior.

The research objectives of this study are: (1) to analyze the linguistic structures and the linguistic deviations used by children in their written sentences and (2) to compare the structures and deviations with the rated quality of the writing, as judged by three competent raters.

Several kinds of constituent and embedded structures were tabulated and deviant structures were grouped into syntactic and lexical classifications. Thus, the study was an attempt to add to the knowledge of children's writing in the manner of previous research by Strickland (1962), Loban (1963), Hunt (1965), O'Donnell (1967), Blount and others (1968, 1969), Menyuk (1969), and Golub (1969). Much of this previous research has met with some criticism (McCaig, 1970).

SUBJECTS

Eighty Fourth Grade and eighty Sixth Grade children were each given a picture and directions to write a composition based on the picture as stimulus. The children were generally from working-class families living in a medium-sized, industrial Wisconsin city. Most of the children were white; however, about 8% of the subjects were black. The mean IQ of the children was 106 with a standard deviation of 12.

ANALYSIS OF LINGUISTIC STRUCTURES

Sixty-three measures were tabulated for each of the 160 written samples. Table 1 presents the means on each variable according to grade level, sex, and rated quality of the discourse. The differences were tested by analysis of variance and those that were significant at the .10, .05, or .01 levels are starred in Table 1.

Variable 2, form-class words, is a count of all the nouns, verbs, adjectives, and adverbs. "Function words," then, is a count of the remaining words, and the mean ratio of form-class to function words comprises Variable 4. T-units, in Variable 5, are those minimal structures that result when a sentence is partitioned into the smallest meaningful units that can stand alone as "sentences" (Hunt, 1965). Variable 7 is a count of the average number of main and subordinate clauses. Variable 16 indicates the number of different basic sentence patterns demonstrated in the T-units. Variable 21 is a count of the unique verbs within each theme. For example, if "ran" was used several times by a student, its use added only one to the count of unique verbs. Variables 37-48 are counts of various classes of suffixes. Note that Variable 31, total adverbs, is partitioned in two ways, by position in Variables 32-35 and by type in Variables 58-61.

The Ss wrote an average of 126 words in response to the picture stimuli. The average sentence (Variable 50) was 12.6 words in length. The Fourth Grade Ss wrote more T-units ($p<.05$) but their T-units and sentences were significantly shorter than those written by Sixth

Table 1

Scores on Measures Obtained from Written Discourse

Group	N	(1) Total Words	(2) Form-Class Words	(3) Function Words	Form/ Function Words	(5) T-Units	(6) Words per T-Unit
Written Discourse							
Grand Mean	160	126.2	69.6	56.6	1.28	12.6	10.7
Stan. Dev.		60.9	33.4	29.4	.33	6.7	3.0
Grade 4	80	124.7	68.9	55.8	1.29	13.6**	9.5
Grade 6	80	127.8	70.4	57.4	1.27	11.6	11.8***
Male	80	105.0	57.7	47.3	1.25	10.6	10.7
Female	80	147.5***	81.5***	65.9***	1.31	14.7***	10.6
High	39	176.6***	95.9***	80.7***	1.23	17.7***	10.6
Medium	82	129.9	72.2	57.7	1.30	12.6	10.9
Low	39	68.2***	37.9***	30.0***	1.30	7.5***	10.1

	(7) Clauses	(8) Clauses per T-Unit	(9) Subor-dinate Clauses	(10) Words per Clause	(11) Sub. Noun Clauses	(12) Sub. Adj. Clauses	(13) Sub. Adv. Clauses
$\bar{X}$	17.8	1.45	5.2	7.6	1.30	1.11	1.23
SD	9.4	.37	4.1	1.8	1.89	1.39	1.58
Grade 4	18.3	1.34	4.6	7.4	1.25	.79	1.21
Grade 6	17.3	1.57***	5.7*	7.8	1.35	1.44***	1.25
Male	14.7	1.44	4.1	7.7	.99	.96	.96
Female	20.9***	1.45	6.2***	7.5	1.61**	1.26	1.50**
High	24.8***	1.43	7.1	7.5	1.97	1.49	1.54
Medium	18.5	1.50	5.8	7.6	1.33	1.22	1.49
Low	9.4***	1.37	2.0***	7.6	.56***	.51***	.38***

	(14) Other Sub. Clauses	(15) Multi-Clause T-Units	(16) T-Unit Patterns	Single-Base Trans-Forms	(18) Modals	(19) Be & Have Forms	(20) Infin-itives
$\bar{X}$	1.51	4.21	6.77	2.76	2.24	2.86	.78
SD	2.21	3.18	2.48	2.40	2.42	2.34	1.17
Grade 4	1.35	4.00	6.66	2.78	1.84	2.87	.68
Grade 6	1.66	4.41	6.87	2.75	2.64**	2.84	.88
Male	1.24	3.38	6.11	2.60	1.85	2.98	.50
Female	1.77	5.04***	7.42***	2.92	2.63**	2.74	1.05***
High	1.95	5.92	8.28	3.92**	2.77	3.62	1.23
Medium	1.77	4.60	7.24	2.70	2.70	2.84	.78
Low	.51***	1.67***	4.26***	1.71***	.74***	2.13***	.31***

Table 1 (continued)

Group	N	(21) Verb Types	(22) Nouns	(23) Determiners	(24) Adjectives	(25) Prepositional Phrases	(26) Nouns per T-Unit
Written Discourse							
Grand Mean	160	8.6	37.2	15.6	5.1	9.52	3.14
Stan. Dev.		5.7	18.0	8.7	4.4	5.93	1.02
Grade 4	80	9.8***	37.5	15.2	4.7	9.16	2.86
Grade 6	80	7.5	36.9	16.0	5.5	9.88	3.42***
Male	80	6.2	30.9	13.7	4.5	8.31	3.11
Female	80	11.1***	43.5***	17.6***	5.7*	10.73***	3.16
High	39	12.6***	51.2***	21.9***	7.1*	14.10***	3.00
Medium	82	8.2	38.1	15.4	5.1	9.48	3.22
Low	39	5.6***	21.0***	9.9***	3.1***	5.03***	3.10

	(27) Determiners /Noun	(28) Adjectives/ Noun	(29) Qualifiers	(30) Possessives	(31) Total Adverbs	(32) Initial Adverbs	(33) Adverbs Before Verb	(34) Adverbs After Verb
$\bar{X}$	.44	.14	1.71	1.91	10.3	2.06	1.85	4.84
SD	.16	.11	1.85	2.54	6.9	2.51	2.12	3.65
Grade 4	.45	.13	1.88	2.34**	9.7	2.58***	1.60	4.00
Grade 6	.43	.15	1.54	1.48	10.9	1.54	2.10	5.68***
Male	.47**	.15	1.36	1.54	7.8	1.68	1.38	3.46
Female	.41	.14	2.05**	2.28*	12.9***	2.44**	2.33***	6.21***
High	.44	.14	2.33	3.30***	14.8*	3.10*	2.77	6.95
Medium	.42	.14	1.70	1.80	10.8	1.98	2.00	5.21
Low	.48*	.15	1.10***	.74***	4.7***	1.18***	.62***	1.95***

	(35) Final Adverbs	(36) Adverbs per T-Unit	Participial Adj. Endings	(38) Adjective Endings	(39) Adverb Endings	(40) Noun Endings	(41) Plural Endings	Possessive Endings
$\bar{X}$	1.55	.82	.33	1.50	.55	.78	4.83	.34
SD	1.60	.41	.83	1.78	1.07	1.35	4.30	.94
Grade 4	1.54	.68	.29	1.23	.46	.63	4.79	.45
Grade 6	1.56	.96	.38	1.78**	.64	.94	4.86	.22
Male	1.24	.78	.35	1.13	.44	.61	4.31	.26
Female	1.86***	.87	.31	1.88***	.66	.95*	5.34	.41
High	1.95	.87	.56**	2.26	1.13***	1.13***	6.05	.72**
Medium	1.62	.88	.22	1.57	.46	.77	4.79	.26
Low	1.00***	.66***	.33	.59***	.15***	.28***	3.67**	.13**

Table 1 (continued)

Group	N	(43) -ing Verb Endings	(44) Past Tense Endings	(45) Partici-cipial -ed	(46) Partici-cipial -ing	(47) Total Suffixes	(48) Suffixes per Word
Written Discourse							
Grand Mean	160	1.99	1.14	.51	.88	13.0	.10
Stan. Dev.		2.03	2.63	.99	1.24	7.7	.05
Grade 4	80	2.09	1.43	.33	.70	12.7	.10
Grade 6	80	1.89	.86	.50	1.06*	13.3	.11
Male	80	1.94	.70	.46	.81	11.2	.11
Female	80	2.04	1.59**	.56	.95	14.8***	.10
High	39	2.10	2.82***	.79	1.21	19.2***	.11
Medium	82	2.16	.80	.50	.82	12.5	.10
Low	39	1.51*	.18***	.26**	.69	7.9***	.10

	(49) Sen-tences	(50) Words per Sentence	(51) T-Units per Sentence	(52) Coordi-nated T-Units	(53) Coordi-nated Verbs	(54) Coordi-nated Nouns	(55) Rela-tive Clauses	(56) Parti-cipial Phrases
$\bar{X}$	10.6	12.6	1.21	2.4	.84	2.33	1.06	.26
SD	5.6	3.4	.24	2.6	1.27	2.50	1.34	.61
Grade 4	11.5	11.2	1.20	2.4	.76	2.18	.73	.18
Grade 6	9.7	14.0***	1.21	2.5	.92	2.48	1.39***	.34*
Male	8.8	12.9	1.23	2.1	.55	1.94	.89	.21
Female	12.4***	12.4	1.19	2.7	1.14***	2.71**	1.23*	.30
High	15.5***	11.8*	1.13	2.3	1.38	2.56	1.44	.23
Medium	10.6	13.0	1.20	2.3	.85	2.40	1.13	.26
Low	5.6***	12.6	1.29***	2.8	.28***	1.92	.51***	.28

	Adverbs in Noun Phrases	(58) Adverbs of Time	(59) Adverbs of Place	(60) Adverbs of Manner	(61) Other Adverbs	(62) Prefixes	Words in Frag-ments
$\bar{X}$	.89	1.64	1.82	1.16	5.68	.12	2.8
SD	1.28	2.49	1.92	1.57	4.37	.37	6.6
Grade 4	.81	1.92	1.86	.89	5.04	.09	3.4
Grade 6	.97	1.36	1.77	1.44**	6.31*	.15	2.2
Male	.57	.86	1.55	.80	4.54	.15	3.3
Female	1.21***	2.42***	2.09*	1.53***	6.81***	.09	2.3
High	1.21	2.54	2.72*	1.69	7.85	.21	1.2
Medium	.99	1.73	1.78	1.24	6.05	.10	2.5
Low	.38***	.56***	1.00***	.46***	2.72***	.08	5.1***

*, **, & ***Significant at the .10, .05, and .01 levels, respectively. The high mean in each significant comparison is marked except for Low vs. Medium where the low mean is marked.

Graders ($p<.01$). Other grade differences were also evident. Sixth Graders wrote more clauses per T-unit, more subordinate adjective clauses, more modals, more nouns per T-unit, more adverbs in the medial position after the verb, more adverbs of manner, more adjective endings, and more relative clauses than the Fourth Graders. Fourth Graders were significantly higher than Sixth Graders in the use of possessives, initial adverbs, and a greater variety of verb types.

Sex differences were also apparent in the analysis of the variables. Females wrote much more than males: 147 words compared to 105. Hence, on most measures of quantity of writing, females scored significantly higher than males. But on the ratios, which may be presumed to measure complexity, males and females scored at generally the same levels.

The themes graded highest and lowest by the three raters were compared to the themes in the middle. The low quality themes were considerably shorter (50 words) than the medium themes, and the high quality themes were 50 words longer than the medium group. This difference in quantity of writing was evident in many of the different variables. On most ratios the differences between high, medium, and low quality themes were much less marked. Note, however, that the low quality themes contained fewer adverbs per T-unit.

The information gained here indicates that somewhere between the Fourth and Sixth grade, children start to use adjective and adverb modification more effectively. Also, they are able, by the Sixth Grade, to use the modal along with past and present tense in the verb phrase. These same Sixth Graders, although their Fourth Grade brothers and sisters are as fluent as they, can embed subordinate adjective clauses more abundantly than the Fourth Graders. In learning the process of modification they are also able to modify sentence elements with more than one other sentence element.

DESCRIPTION OF SYNTACTIC AND LEXICAL DEVIATIONS

The corrective bias of language arts textbooks written for students is not selective. Authors of these texts attempt to point out and to offer corrective exercises for the vast number of deviations from standard English which are possible for native speakers, both adults and children, to make. Rather than tabulate the total universe of deviations possible in the English language, the present authors decided to describe and categorize the most frequent deviations which Fourth and Sixth Grade boys and girls made in their writing.

Based on a transformational description of English and knowledge of children's written language performance, the deviations were divided into two categories: (1) syntactic deviations and (2) lexical deviations. The category of syntactic deviations included syntactic ambiguities, malformed sentences, and malformed constituents within sentences. The category of lexical deviations included lexical ambiguities, malformed words, and malformed constituents within words or word groups. Obviously, the syntactic category deals mostly with grammatical deviations (not necessarily traditional usage); the lexical category deals with word choice and spelling deviations.

The many syntactic deviations shown in Table 2 deserve serious consideration.

Note that the proper punctuation of sentences is the most frequent problem for these Fourth and Sixth Graders. The first three categories; sentence sense, comma fault, and coordinating conjunction, indicate three aspects of the problem of determining proper sentence punctuation. Errors are made in the use of end punctuation and capital letters, in the use of commas for periods and vice versa, and in the use of and at points where a sentence should rightfully end.

Another huge quantity of errors could be eliminated by the simple task of proofreading the completed sentences. Thus, most redundancy and extraneous words could be eliminated and many omissions of the subject, the verb be, tense markers, articles, expletives, and capital letters could be caught and corrected.

For other of the error categories, it appears necessary that certain specific kinds of knowledge have to be taught. For instance, the use of the apostrophe, the distinction between proper and common nouns, the meaning of a, an, and the, end punctuation, internal sentence punctuation, and subject-predicate agreement, are apparent candidates for such instructional necessity.

The 24 categories of syntactic deviation are listed in order of descending frequency of occurrence. Note that in absolute numbers females made somewhat more errors than males and Sixth Graders made slightly more errors than Fourth Graders. When these absolute numbers of errors were divided by the number of words, the following data resulted: Males averaged about 9.5 syntactic errors per 100 words and females averaged 7.5. Fourth and Sixth Graders each averaged 8.3 syntactic errors per 100 words.

Certain of the deviations seem to be decreasing in frequency in the Sixth Grade. These

Table 2

1683 Syntactic Deviations

Explanation of Deviation	Frequency			
	Fourth Grade		Sixth Grade	
	Male	Female	Male	Female
1. Sentence sense: The period and/or the capital letter is missing or misplaced.	85	93	122	88
2. Comma fault: Comma over-used, under-used, or misplaced.	83	97	53	115
3. Coordinating conjunction: and, but, or, etc., omitted, inappropriate or over-used.	30	45	70	32
4. Apostrophe: Possessive, plural, or contraction marker incorrect; e.g., color's for colors.	35	35	22	20
5. Redundancy: Words or phrases used redundantly or extraneously; e.g., The man bandaged the boy's hand of the boy.	21	23	24	33
6. Capitalization: Capital letter missing for proper noun or used for common noun; e.g., State for state.	23	36	17	5
7. Agreement marker: Number marker omitted or incorrect; e.g., he look for he looks.	10	12	21	15
8. Other sentence punctuation: Misuse of quotation marks, colon, dash, parentheses, and question mark.	4	27	3	15
9. Malformed sentences: Tangled construction, uncertain antecedents, dangling modifier, strange word order.	11	16	8	12
10. Determiner: Article a, an, or the omitted or inappropriately used.	11	9	11	13
11. External tense marker: -s, -ed, omitted or incorrect; e.g., they walk for they walked.	8	8	8	16
12. Verb be omitted; e.g., She a teacher for She is a teacher.	15	7	3	10
13. Pronoun form: Inappropriate pronoun case used, e.g., hers was first for she was first.	5	12	7	10
14. Singular-plural inversion; e.g., She picked all of the flower for ...flowers.	7	5	7	12
15. Verb be form; e.g., he be a farmer for he is a farmer.	2	7	3	10
16. Expletive: it or there omitted; e.g., was a boat for it was a boat.	9	1	8	2
17. Form-class markers: Incorrect use of a derivational form-class marker; e.g., He talked gentle for ...gently, The Japan are brave people for The Japanese...	2	3	6	6
18. Internal tense marker: Wrong word form; e.g., took used for taken, seen for saw, mans for men.	4	1	5	5

Table 2 (continued)

Explanation of Deviation	Frequency			
	Fourth Grade		Sixth Grade	
	Male	Female	Male	Female
19. Predicate verb omitted: The verb is not present.	1	2	8	3
20. Subject omitted: Subject noun or pronoun omitted.	3	1	4	3
21. Modal: Modal omitted or incorrect.	3	2	2	2
22. Negation: The form of negation inappropriate or doubled; e.g., They don't have no for They don't have any.	3	1	0	1
23. Progressive aspect: Progressive verb form lacking or inappropriate; e.g., look for is looking.	4	0	0	0
24. Other omissions: Preposition, adjective, or other words not classed above.	3	8	3	7
Total Deviations	382	451	415	435

include the use of the apostrophe and capitalization, both of which decrease to nearly half the level that was set in Fourth Grade. Sixth Grade males seem to have a special difficulty using coordinating conjunctions and maintaining sentence sense. The overuse and misuse of the word "and" and the period by Sixth Graders probably also accounts for the relatively low frequency of the comma fault error for this group.

The high quality themes averaged 6.8 errors per 100 words, low had 28.5, and the medium themes averaged 13.7 errors. On a per-sentence basis, these data imply that high quality themes averaged less than one error (.8 errors per sentence), medium themes averaged about two errors (1.8), and low themes averaged over three errors (3.6) per sentence.

All of the syntactic deviations listed in Table 2 appear for both black and white Ss and are related to explainable linguistic features of the written code. The linguistic concepts underlying the deviations comprise a very manageable list which could be profitably incorporated into a written language learning program for the elementary level.

In lexical deviations, males averaged 5.8 errors per 100 words, and females averaged 4.4. Sixth Graders and Fourth Graders averaged 4.3 and 5.7 errors, respectively.

Lexical deviations are obviously present at this level, as seen in Table 3. Many of the deviations are problems of vocabulary development and word selection rather than spelling errors. Note that only about half of the deviations can be attributed to spelling. Of these spelling errors many result from the omission, addition, or substitution of a single letter. In other words, the children do know how to "spell", though it may not be the exact skill that teachers and parents might wish. The list of scrambles and unknowns is small, less than 100 such errors in 20,000 words. Even here, the spelling of some of these words may have been deviant because the word was not correctly pronounced in the child's speaking vocabulary.

It appears that the lexical deviations can be placed into a few convenient categories, as could the syntactic deviation. The existence of such meaningful categories suggests that both types of problems, orthographic and syntactic, are susceptible to a cognitive learning approach (as opposed to rote-memory).

The lexical deviations are interesting from another standpoint. To the extent that these deviations indicate the development of the child's thought and language, a comparative and cumulative record of the concepts that a child can control in the oral mode but not in the written language mode would seem to be useful knowledge for the teacher and the researcher.

The number of deviations, both lexical and syntactic, in each theme was tabulated and then the correlation coefficient between theme quality and deviations was calculated. The correlation between theme quality and absolute number of deviations was .25. This rather low

Table 3

1001 Lexical Deviations

I. Lexicon deviations, in which the correct word or phrase is clear but another word or pseudo-word is used (365 errors)

A. The one-word, two-word quandary
in which the word is broken up when it should be whole, or whole when it should be broken up (94 errors on 54 words)
Typical errors: on to, alot, who ever, outside, some one, back ground, up side, all most, may be, near by, sometime, etc.

B. Homonyms
in which the wrong spelling is selected to represent one of two or three words that sound alike (116 errors on 34 words)
Typical errors: their-they're-there, 54 errors; to-too-two-2, 23; witch-which, 6; nobs-knobs, 4; no-know, 3; by-buy, 3; wear-where, 3; etc.

C. Confused pairs
in which the wrong one of two similar words is used (45 errors on 24 words)
Typical errors: were-where, than-then, now-know, throw-through, quack-quake, etc.

D. Careless substitutions of small words (57 errors on 33 words)
Typical errors: the for they, as for has, think for thing, and for an, there for they, of for for, at for it, etc.

E. Word form (30 errors on 26 words)
Typical errors: where for in which, real for really, more happy for happier, new for newly, wooding for wooden, funny for strangely, gives for presents, etc.

F. Other (22 errors on 16 words)
Typical errors: closing for clothing, taking for telling, life for like, bank for bags, cure for curious, become for because, etc.

II. Misspelled words
in which a good attempt at correct spelling is evident (493 errors)

A. Inversions
in which all the necessary letters are present but their sequence is wrong; nearly half the inversions involve a pair of vowels, 15% involve r and a vowel, and 10% involve s and a vowel (67 errors on 41 words)
Typical spellings: peices, 8 times; thier, 8; caslte, 4; dosen't, 4; gril, 3; feild, 3; chiar, 2; shrap; niose; filp; iorn; gose; olny; etc.

B. To double or not to double (46 errors on 31 words)
Doubling errors committed: forrest, allways, eatting, possitive, color-full, etc.
Doubling omitted: realy, biger, tiped, puting, midle, finaly, smoth, etc.

C. To "e" or not to "e" (63 errors on 37 words)
Final "e" omitted: Ther, orang, wher, hous, uncl, becaus, etc.
"e" followed by an ending: takeing, makeing, haveing, isen't, gloomey, tomatos, gos, etc.
Final "e" added: flage, withe, looke, etc.

D. Extra letter (20 errors on 19 words)
Typical errors: sourt for sort, rouned for round, veary for very, wather for water, lemonds for lemons, onther for other, etc.

Table 3 (continued)

E. Vowel pair represented by a single vowel (38 errors on 29 words)
Typical errors: ponts for points, frends for friends, becuse for because fond for found, reserch for research, etc.

F. Missing letter (57 errors on 48 words)
the letters missing most often were c, 9 times; r, 7; l, 7; t, 6; h, 5; y, 4; and n, 3.
Typical errors: hoding for holding, stiped for striped, wich for which, brik for brick, wite for white, tring for trying, piture for picture, quikly for quickly, etc.

G. Wrong consonant (30 errors on 27 words)
Typical errors: fense for fence, snoking for smoking, buchet for bucket, exsept for except, senent for cement, etc.

H. Wrong vowel (97 errors on 62 words)
Typical errors: thay for they, conoe for canoe, becouse for because, apon for upon, persin for person, cotten for cotton, oncover for uncover, fliing for flying, etc.

III. Phonic spelling
in which the writer can pronounce the word but the representation of the sounds is creative (75 errors on 59 words)
Typical errors: stofe for stuff, crcels for circles, inger for injure, atick for attic, frute for fruit, mite for might, famlys for families, anceres for answers, etc.

IV. Deviations due to speech patterns or dialect (58 errors on 39 words)
Typical errors: off of for off, hisself for himself, probly for probably, pitcher for picture, lookin for looking, sorda for sort of, lack for like, must of for must have, don't for doesn't, walken for walking, gest for just, etc.

V. Scrambled words, major mistakes, unknowns, and/or otherwise unclassified: includes those 23 words for which the correct word was uncertain (85 errors on 79 words)
Typical errors: drate for dirty, rowen for wrong, tutchere for texture, segerrent for cigarette, fotten for fountain, distory for destroying, hiching for kitchen, bakts for baskets, intils for until, etc.

coefficient stemmed from the marginal relationship between fewer errors and higher quality. However, when deviations per number of words were computed and the correlation coefficient between these and theme quality was obtained, the relationship proved significant ($r = .64$; $p < .001$). Thus, an important aspect of theme quality is the number of deviations per amount written. As deviations are less frequent, quality is judged higher.

II
SUMMARY AND IMPLICATIONS

The implications of this study are stated in terms of needs for an elementary written language program:

(1) Since language fluency is primary in language learning, then a written language learning program must include instructional strategies for stimulating, maintaining, and increasing the flow of children's written language.

(2) Since longer sentences and T-units produced by the embedding of relative clauses is a feature of written language growth, then instructional strategies for teaching and using this linguistic process must be included in a written language learning program.

(3) Since expansion of the use of tense, mood, aspect, and voice in the verb string is an indicator of written language growth, then instructional strategies for teaching this linguistic process must be included in a written language learning program.

(4) Since the use of adjectival and adverbial modification is an indicator of written language growth, then instructional strategies for teaching this linguistic process must be included in a written language learning program.

(5) Since it is pedagogically impossible to correct for the total universe of deviations possible in written English language, only those deviations that are actually made by a given population of children need be taught.

(6) Since linguistic deviations made by Fourth and Sixth Graders can be classified into major categories, syntactic and lexical, then linguistic concepts and linguistic performance taught should emphasize these two major categories.

(7) Since the list of syntactic deviations contains no more than 24 categories of deviations from standard structures, then a written language learning program should include an ordered instructional strategy for teaching these linguistic concepts and linguistic performances.

(8) Since the category of lexical deviations can be further divided into two subsets, (1) lexical ambiguity and (2) spelling deviation, then two instructional strategies should be devised, one for teaching vocabulary and related concepts; the other, for teaching written word-attack and spelling skills.

(9) Since spelling deviations divide into general categories, instructional strategies for teaching spelling should reflect these categories.

(10) Since a child's conceptual level is reflected in his lexical and syntactic growth patterns, then means of evaluating, storing, and contrasting these thought and language patterns in children's written language should be devised.

GPO 820-760-3

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GPO 820-760-2